

Application No. 10/773,559
Paper Dated October 22, 2007
In Reply to USPTO Correspondence of June 20, 2007 and October 1, 2007
Attorney Docket No. 1217-040223

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Withdrawn) A carrier core material containing at least one metal oxide ($M^L O$) having a melting point of not higher than 1000°C and at least one metal oxide ($M^H O$) having a melting point of not lower than 1800°C, wherein the metal (M^H) for constituting the metal oxide ($M^H O$) has an electrical resistivity of not less than $10^{-5} \Omega \cdot \text{cm}$.

2. (Withdrawn) The carrier core material as claimed in claim 1, wherein a part of the metal oxide ($M^H O$) is independently present in the carrier core material.

3. (Withdrawn) The carrier core material as claimed in claim 1, wherein the weight ratio (($M^L O$)/($M^H O$)) of the metal oxide ($M^L O$) to the metal oxide ($M^H O$) contained in the carrier core material is in the range of 0.01 to 50.

4. (Withdrawn) The carrier core material as claimed in claim 1, having an average particle diameter of 15 to 70 μm .

5. (Withdrawn) A carrier core material comprising a ferrite component having composition represented by the following formula (A):



wherein y and z are each expressed in % by mol and are numbers satisfying the conditions of $40 \leq z < 100$ and $y+z=100$, M is a metal selected from Fe, Cu, Zn, Mn, Mg, Ni, Sr, Ca and Li, and MO is one or more oxides selected from oxides of these metals,

and containing, in the ferrite component, at least one metal oxide ($M^L O$) having a melting point of not higher than 1000°C and at least one metal oxide ($M^H O$) having a melting

Application No. 10/773,559
Paper Dated October 22, 2007

In Reply to USPTO Correspondence of June 20, 2007 and October 1, 2007
Attorney Docket No. 1217-040223

point of not lower than 1800°C, said metal oxide ($M^L O$) and said metal oxide ($M^H O$) being selected from metal oxides other than the metal oxide (MO).

6. (Withdrawn) The carrier core material as claimed in claim 5, wherein a part of the metal oxide ($M^H O$) is independently present in the carrier core material.

7. (Withdrawn) The carrier core material as claimed in claim 5, wherein the weight ratio ($(M^L O)/(M^H O)$) of the metal oxide ($M^L O$) to the metal oxide ($M^H O$) contained in the carrier core material is in the range of 0.01-to 50.

8. (Withdrawn) The carrier core material as claimed in claim 5, having an average particle diameter of 15 to 70 μm .

9. (Withdrawn) The carrier core material as claimed in claim 5, wherein the metal (M^H) for constituting the metal oxide ($M^H O$) has an electrical resistivity of not less than $10^{-5} \Omega \cdot cm$.

10. (Withdrawn) The carrier core material as claimed in claim 5, wherein the metal oxide (MO) is at least one metal oxide selected from the group consisting of FeO, MnO, MgO, CaO, Li_2O and SrO.

11. (Withdrawn) The carrier core material as claimed in claim 1, wherein the total content ($(M^L O)+(M^H O)$) by weight of the metal oxide ($M^L O$) and the metal oxide ($M^H O$) in the carrier core material is in the range of 0.02 to 24% by weight.

12. (Withdrawn) The carrier core material as claimed in claim 1, wherein the metal oxide ($M^H O$) is contained inside the particle of the carrier core material in a concentration higher than that in the vicinity of the surface of the particle thereof.

Application No. 10/773,559
Paper Dated October 22, 2007
In Reply to USPTO Correspondence of June 20, 2007 and October 1, 2007
Attorney Docket No. 1217-040223

13. (Withdrawn) The carrier core material as claimed in claim 1, wherein the melting point of the metal oxide ($M^L O$) is in the range of 550 to 900°C and the melting point of the metal oxide ($M^H O$) is in the range of 1800 to 3500°C.

14. (Withdrawn) The carrier core material as claimed in claim 1, having no heat history of being heated to a temperature higher than the melting point of the metal oxide ($M^H O$) contained in the carrier core material.

15. (Withdrawn) The carrier core material as claimed in claim 1, having an electrical resistivity of not less than $10^2 \Omega \cdot \text{cm}$.

16. (Previously Presented) A coated carrier comprising a carrier core material and a resin coating layer with which the carrier core material is coated, wherein the carrier core material contains at least one metal oxide ($M^L O$) having a melting point of not higher than 1000°C and at least one metal oxide ($M^H O$) having a melting point of not lower than 1800°C, the metal oxide ($M^H O$) is selected from the group consisting of ZrO_2 , TiO_2 and Ta_2O_5 , and the metal (M^H) for constituting the metal oxide ($M^H O$) has an electrical resistivity of not less than $10^{-5} \Omega \cdot \text{cm}$, wherein a part of the metal oxide ($M^H O$) is independently present in the carrier core material for forming the coated carrier.

17. (Previously Presented) A coated carrier comprising a carrier core material and a resin coating layer with which the carrier core material is coated, wherein the carrier core material comprises a ferrite component having composition represented by the following formula (A):



wherein y and z are each expressed in % by mol and are numbers satisfying the conditions of $40 \leq z < 100$ and $y+z=100$, M is a metal selected from Fe, Cu, Zn, Mn, Mg, Ni, Sr, Ca and Li, and MO is one or more oxides selected from oxides of these metals,

and contains, in the ferrite component, at least one metal oxide ($M^L O$) having a melting point of not higher than 1000°C and at least one metal oxide ($M^H O$) having a melting point of not higher than 1800°C.

Application No. 10/773,559
Paper Dated October 22, 2007

In Reply to USPTO Correspondence of June 20, 2007 and October 1, 2007
Attorney Docket No. 1217-040223

point of not lower than 1800°C, the metal oxide ($M^H O$) being selected from the group consisting of ZrO_2 , TiO_2 and Ta_2O_5 , and said metal oxide ($M^L O$) being selected from metal oxides other than the metal oxide (MO), wherein a part of the metal oxide ($M^H O$) is independently present in the carrier core material for forming the coated carrier.

18. (Original) The coated carrier as claimed in claim 17, wherein the metal (M^H) for constituting the metal oxide ($M^H O$) has an electrical resistivity of not less than $10^5 \Omega \cdot \text{com}$.

19. (Previously Presented) The coated carrier as claimed in claim 17, wherein the metal oxide (MO) is at least one metal oxide selected from the group consisting of FeO , MnO , MgO , CaO , Li_2O and SrO .

20. (Cancelled).

21. (Previously Presented) The coated carrier as claimed in claim 16, wherein the weight ratio ($(M^L O)/(M^H O)$) of the metal oxide ($M^L O$) to the metal oxide ($M^H O$) contained in the carrier core material for forming the coated carrier is in the range of 0.01 to 50.

22. (Previously Presented) The coated carrier as claimed in claim 16, wherein the total content ($(M^L O)+(M^H O)$) by weight of the metal oxide ($M^L O$) and the metal oxide ($M^H O$) in the carrier core material for forming the coated carrier is in the range of 0.02 to 24% by weight.

23. (Previously Presented) The coated carrier as claimed in claim 16, wherein the metal oxide ($M^H O$) is contained inside the particle of the carrier core material for forming the coated carrier in a concentration higher than that in the vicinity of the surface of the particle thereof.

Application No. 10/773,559
Paper Dated October 22, 2007
In Reply to USPTO Correspondence of June 20, 2007 and October 1, 2007
Attorney Docket No. 1217-040223

24. (Previously Presented) The coated carrier as claimed in claim 16, wherein the melting point of the metal oxide ($M^L O$) is in the range of 550 to 900°C and the melting point of the metal oxide ($M^H O$) is in the range of 1800 to 3500°C.

25. (Previously Presented) The coated carrier as claimed in claim 16, wherein the carrier core material is coated with 0.01 to 10 parts by weight of a resin based on 100 parts by weight of the carrier core material.

26. (Previously Presented) The coated carrier as claimed in claim 16, having an average particle diameter of 15 to 70 μm .

27. (Previously Presented) The coated carrier as claimed in claim 16, having an electrical resistivity of not less than $10^7 \Omega \cdot cm$.

28. (Previously Presented) The coated carrier as claimed in claim 16, having no heat history of being heated to a temperature higher than the melting point of the metal oxide ($M^H O$) contained in the carrier core material for forming the coated carrier.

29. (Previously Presented) The coated carrier as claimed in claim 16, wherein the carrier core material for forming the coated carrier has an electrical resistivity of not less than $10^2 \Omega \cdot cm$.

30. (Previously Presented) The coated carrier as claimed in claim 16, having a magnetization, at 1000 ($10^3 / 4\pi \cdot A/m$) (1000 oersted), of 40 to 100 Am^2/kg (40 to 100 emu/g).

31. (Previously Presented) The coated carrier as claimed in claim 16, wherein the resin for forming the coated carrier is a silicone type thermosetting resin.

Application No. 10/773,559
Paper Dated October 22, 2007
In Reply to USPTO Correspondence of June 20, 2007 and October 1, 2007
Attorney Docket No. 1217-040223

32. (Withdrawn) A two-component developing agent for electrophotography, comprising the coated carrier of claim 16 and toner particles having an average particle diameter of 3 to 15 μm .

33. (Withdrawn) An image forming method comprising developing an electrostatic latent image with the two-component developing agent for electrophotography of claim 32 using an alternating electric field.

34. (Withdrawn) The carrier core material as claimed in claim 5, wherein the total content $((M^L\text{O})+(M^H\text{O}))$ by weight of the metal oxide ($M^L\text{O}$) and the metal oxide ($M^H\text{O}$) in the carrier core material is in the range of 0.02 to 24% by weight.

35. (Withdrawn) The carrier core material as claimed in claim 5, wherein the metal oxide ($M^H\text{O}$) is contained inside the particle of the carrier core material in a concentration higher than that in the vicinity of the surface of the particle thereof.

36. (Withdrawn) The carrier core material as claimed in claim 5, wherein the melting point of the metal oxide ($M^L\text{O}$) is in the range of 550 to 900°C and the melting point of the metal oxide ($M^H\text{O}$) is in the range of 1800 to 3500°C.

37. (Withdrawn) The carrier core material as claimed in claim 5, having no heat history of being heated to a temperature higher than the melting point of the metal oxide ($M^H\text{O}$) contained in the carrier core material.

38. (Withdrawn) The carrier core material as claimed in claim 5, having an electrical resistivity of not less than $10^2\Omega\cdot\text{cm}$.

39. (Cancelled).

40. (Previously Presented) The coated carrier as claimed in claim 17, wherein the weight ratio ((M^LO)/(M^HO)) of the metal oxide (M^LO) to the metal oxide (M^HO) contained in the carrier core material for forming the coated carrier is in the range of 0.01 to 50.

41. (Previously Presented) The coated carrier as claimed in claim 17, wherein the total content ((M^LO)+(M^HO)) by weight of the metal oxide (M^LO) and the metal oxide (M^HO) in the carrier core material for forming the coated carrier is in the range of 0.02 to 24% by weight.

42. (Previously Presented) The coated carrier as claimed in claim 17, wherein the metal oxide (M^HO) is contained inside the particle of the carrier core material for forming the coated carrier in a concentration higher than that in the vicinity of the surface of the particle thereof.

43. (Previously Presented) The coated carrier as claimed in claim 17, wherein the melting point of the metal oxide (M^LO) is in the range of 550 to 900°C and the melting point of the metal oxide (M^HO) is in the range of 1800 to 3500°C.

44. (Previously Presented) The coated carrier as claimed in claim 17, wherein the carrier core material is coated with 0.01 to 10 parts by weight of a resin based on 100 parts by weight of the carrier core material.

45. (Previously Presented) The coated carrier as claimed in claim 17, having an average particle diameter of 15 to 70 μm .

46. (Previously Presented) The coated carrier as claimed in claim 17, having an electrical resistivity of not less than $10^7 \Omega\cdot\text{cm}$.

Application No. 10/773,559
Paper Dated October 22, 2007
In Reply to USPTO Correspondence of June 20, 2007 and October 1, 2007
Attorney Docket No. 1217-040223

47. (Previously Presented) The coated carrier as claimed in claim 17, having no heat history of being heated to a temperature higher than the melting point of the metal oxide ($M^H O$) contained in the carrier core material for forming the coated carrier.

48. (Previously Presented) The coated carrier as claimed in claim 17, wherein the carrier core material for forming the coated carrier has an electrical resistivity of not less than $10^2 \Omega \cdot cm$.

49. (Previously Presented) The coated carrier as claimed in claim 17, having a magnetization, at 1000 ($10^3 / 4\pi \cdot A/m$) (1000 oersted), of 40 to 100 Am²/kg (40 to 100 emu/g).

50. (Previously Presented) The coated carrier as claimed in claim 17, wherein the resin for forming the coated carrier is a silicone type thermosetting resin.

51. (Withdrawn) A two-component developing agent for electrophotography, comprising the coated carrier of claim 17 and toner particles having an average particle diameter of 3 to 15 μm .

52. (New) The coated carrier as claimed in claim 16, wherein an Hc of the carrier core material is not more than 50 Oe.

53. (New) The coated carrier as claimed in claim 17, wherein an Hc of the carrier core material is not more than 50 Oe.

54. (New) The coated carrier as claimed in claim 16, wherein the carrier core material is a soft ferrite material.

55. (New) The coated carrier as claimed in claim 17, wherein the carrier core material is a soft ferrite material.